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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,706	10/14/2003	Kimble Dong	004320.P006C	4838

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EXAMINER	
HENDERSON, ADAM	

ART UNIT	PAPER NUMBER
2622	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/684,706	DONG, KIMBLE	
	Examiner	Art Unit	
	Adam L. Henderson	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,21,22 and 24-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,21,22 and 24-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 17 December 2007 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-7, 21, 22, and 24-27 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Rambaldi et al. (US Patent 6,618,084).

5. With regard to claim 1 Rambaldi et al. disclose a MOS image sensor comprising:

a pixel array formed from a plurality of pixels arranged in a matrix of rows and columns (pixel array area sensor 12, FIG. 1);

location processing means for providing a digital location number for each pixel of the pixel array (column 9 lines 33-45) [while no specific location processing means are disclosed it is inherent that one must exist in order for the disclosed storing of the location to be accomplished, if no location processing means existed it would be impossible to determine what location to store for the defective pixels];

signal processing circuitry for reading out signals from the pixel array and outputting processed pixel signals (analog to digital converter 18, FIG. 1);

dead pixel comparator circuitry for receiving the processed pixel signals from the signal processing circuitry and examining the processed pixel signals to see if they are indicative of dead pixels (fault analysis and correction block 24, FIG. 1, column 9 lines 19-33);

location storage circuitry for receiving dead pixel information from the dead pixel comparator circuitry and for storing the digital location number generated by the location processing means for each dead pixel, wherein digital location numbers are stored in the location storage circuitry only for pixels that are determines to be dead pixels (memory 26, FIG. 1, column 9 lines 33-45); and

location comparator circuitry for comparing the digital location number of a pixel that is being processed by the signal processing circuitry with the stored digital location numbers of dead pixels to determine if the pixel that is being processed corresponds to a dead pixel (fault correction block 24, FIG. 1, column 9 line 56 – column 10 line 45), wherein the pixel array and

the dead pixel comparator circuitry are formed on a single integrated circuit (column 5 lines 29-35).

6. With regard to claim 7 Rambaldi et al. disclose wherein the location storage circuitry is coupled to an off chip storage area (column 5 lines 33-35) [Rambaldi et al. disclose that it *may* be desirable to have the memory included on the single chip, however the inclusion of the word 'may' clearly indicates this is not necessarily preferable and in some cases it may be preferable to include the memory off-chip].

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 2, 21, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rambaldi et al. (US Patent 6,618,084) in view of Younse et al. (US Patent 4,805,023).

9. With regard to claim 2 Rambaldi et al. disclose the image sensor of claim 1, but fail to disclose wherein the location processing means comprises a location shift register for indicating the digital location number of each of the pixels to the pixel array, the location comparator circuitry and the location storage circuitry.

Younse et al. disclose wherein the location processing means comprises a location shift register for indicating the digital location number of each of the pixels to the pixel array, the

location comparator circuitry and the location storage circuitry (pixel address counter, column 3 lines 1-30).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the image sensor of Rambaldi et al. to include the pixel address counter of Younse et al. in order to know the exact pixel address currently being scanned (Younse et al. column 3 lines 1-30).

10. All limitations of claim 21 are addressed in the rejection of claims 1 and 2, claim 21 is therefore likewise rejected.

11. With regard to claim 22 Rambaldi et al. disclose wherein the pixel array, the signal processing circuitry, and the dead pixel comparator circuitry are fabricated on a single MOS chip. It would have been obvious to include the location shift register of Younse et al. as part of that single chip in order to continue the process of creating compact circuitry for the camera device.

12. All limitations of claim 24 are addressed in the rejection of claim 1, claim 24 is likewise rejected.

13. Claims 3, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rambaldi et al. (US Patent 6,618,084) in view of Fossum et al. (US Patent 6,611,288).

14. With regard to claim 3 Rambaldi et al. disclose the image sensor of claim 1, but fail to disclose wherein the signal processing circuitry compensates for a dead pixel by repeating a pixel signal from a pixel that was read out prior to the dead pixel.

Fossum et al. disclose wherein the signal processing circuitry compensates for a dead pixel by repeating a pixel signal from a pixel that was read out prior to the dead pixel (column 3 line 66 – column 4 line 7).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the image sensor of Rambaldi et al. to include the dead pixel compensation taught by Fossum et al. in order to quickly and easily replace the dead pixel data since no complex calculations of a pixel mask/replacement would be required.

15. With regard to claim 5 Rambaldi et al. discloses the image sensor of claim 1, but fails to disclose wherein the dead pixel comparator is initially activated when the image sensor is first powered on to examine the processed pixel signals from each pixel only once.

Fossum et al. discloses wherein the dead pixel comparator is initially activated when the image sensor is first powered on to examine the processed pixel signals from each pixel only once (column 2 lines 20-22).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the image sensor of Rambaldi et al. to include the power on test taught by Fossum et al. in order to provide a means of ensuring regular testing since, as Rambaldi discloses, new errors may develop over time (Rambaldi et al. column 7 lines 35-52).

16. With regard to claim 6 Rambaldi et al. disclose wherein the dead pixel comparator may be activated at later times to reexamine the processed pixel signals from each pixel so as to update the dead pixel digital location numbers stored in the location storage circuitry (column 7 lines 48-52) [it is disclosed the sensor may be periodically tested, thus it can be retested at later times].

17. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rambaldi et al. (US Patent 6,618,084) in view of Lin et al. (US Patent 4,920,428).

18. With regard to claim 4 Rambaldi et al. disclose the image sensor of claim 1, but fail to disclose wherein the signal processing circuitry compensates for a dead pixel by averaging the pixel signal from a pixel that was read out prior to the dead pixel with a pixel signal from a pixel that was read out subsequent to the dead pixel.

Lin et al. disclose wherein the signal processing circuitry compensates for a dead pixel by averaging the pixel signal from a pixel that was read out prior to the dead pixel with a pixel signal from a pixel that was read out subsequent to the dead pixel (column 6 lines 1-2).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the image sensor of Rambaldi et al. to include the pixel averaging function taught by Lin et al. in order to provide an alternative method that is well known.

19. Claims 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rambaldi et al. (US Patent 6,618,084) in view of Younse et al. (US Patent 4,805,023) and Liang et al. (US Patent 5,781,233).

20. Claim 25 is rejected under the same analysis as claims 1 and 2, further Rambaldi et al. and Younse et al. fail to disclose a means for precharging the plurality of pixels to a fixed voltage.

Liang et al. disclose a means for precharging the plurality of pixels to a fixed voltage (column 6 lines 38-52).

It would have been obvious at the time of the invention to one of ordinary skill in the art to modify the image sensor of Rambaldi et al. and Younse et al. to include the precharging function taught by Liang et al. in order to provide signal amplification of the pixel signal (column 3 lines 9-13).

21. Claim 26 is rejected under the same analysis as claim 22.

22. All limitations of claim 27 are addressed in the rejection of claim 1, claim 27 is likewise rejected.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adam L. Henderson whose telephone number is 571-272-8619. The examiner can normally be reached on Monday-Friday, 7am to 3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ALH
3 February 2008

NGOC-YEN VU
SUPERVISORY PATENT EXAMINER